AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of claims

1. (currently amended) A method of remote digital key generation, comprising:

applying an initialization code to a first chaotic system ~~having dynamics not determinable solely from the initialization code,~~ such that the initialization code causes ~~to cause~~ the first chaotic system to assume a periodic orbit independent from the initial state of the first chaotic system;

allowing the first chaotic system to generate, at least in part based on the periodic orbit, a first key bitstream ~~not determinable solely from the initialization code;~~

applying the initialization code to a remote second chaotic system, identical to the first chaotic system, to drive the second chaotic system into synchrony with the first chaotic system independent from the initial state of the second chaotic system, thereby allowing the second chaotic system to reproduce the first key bitstream.

2. (original) The method for remote digital key generation of claim 1 wherein the first chaotic system is defined by a set of differential equations.

3. (original) The method for remote digital key generation of claim 1 wherein the first chaotic system is defined by a mapping function.

4. (original) The method for remote digital key generation of claim 1 wherein the first chaotic system is defined by an electrical circuit.

5. (original) The method for remote digital key generation of claim 1 wherein the first chaotic system is defined by a configuration of optical devices.

6-10 (canceled)

11. (currently amended) A system for remote digital key generation, comprising:

an encryptor for applying an initialization code having a first chaotic system such that the initialization code causes to cause the first chaotic system to assume a periodic orbit system independent from the initial state of the first chaotic system, the first chaotic system having dynamics not determinable solely from the initialization code, allowing the first chaotic system to generate, at least in part based on the periodic orbit, a first key bitstream not determinable solely from the initialization code, and for sending the initialization code to a decryptor; and

the decryptor for applying the initialization code to a remote second chaotic system, identical to the first chaotic system, to drive the second chaotic system into synchrony with the first chaotic system independent from the initial state of the second chaotic system, thereby allowing the second chaotic system to reproduce the first key bitstream.

12. (previously presented) The system for remote digital key generation of claim 11 wherein the first chaotic system is defined by a set of differential equations

13. (previously presented) The system for remote digital key generation of claim 11 wherein the first chaotic system is defined by a mapping function.

14. (previously presented) The system for remote digital key generation of claim 11 wherein the first chaotic system is defined by an electrical circuit.

15. (previously presented) The system for remote digital key generation of claim 11 wherein the first chaotic system is defined by a configuration of optical devices.

16. (new) The method of claim 1, further comprising:

encrypting data using the first key bitstream; and

decrypting the encrypted data using the reproduced first key bitstream.

17. (new) The system of claim 11, wherein the encryptor encrypts data using the first key bitstream and the decryptor decrypts the encrypted data using the reproduced first key bitstream.

18. (new) The method of claim 1 wherein the first chaotic system has a trajectory that passes around at least two lobes and through several cross-sections.

19. (new) The method of claim 18, wherein the initializing code influences the trajectory as the trajectory passes through at least one of the several cross-sections.

20. (new) The system of claim 11 wherein the chaotic system has a trajectory that passes around at least two lobes and through several cross-sections.

21. (new) The system of claim 20, wherein the initializing code influences the trajectory as the trajectory passes through at least one of the several cross-sections.